List of Contents

NUMBER 1

M. Kocifaj, I. Kapišinský and **F. Kundracik** — 1 Optical effects of irregular cosmic dust particle U2015 B10

D.A. Knoll, W.J. Rider and **G.L. Olson** — 15 An efficient nonlinear solution method for non-equilibrium radiation diffusion

K.W. Jucks, R. Rodrigues, R. Le Doucen, C. Claveau, W.A. Traub and **J-M. Hartmann** — 31 Model, software, and database for computation of line-mixing effects in infrared Q branches of atmospheric CO_2: II. Minor and asymmetric isotopomers

C. Boussin, B.L. Lutz, A. Hamdouni, and **C. de Bergh** — 49 Pressure broadening and shift coefficients for H_2, He and N_2 in the $3\nu_2$ band of $^{12}CH_3D$ retrieved by a multispectrum fitting technique

M.H. Sellami and **M.S. Sifaoui** — 85 Modelling solar radiative transfer inside the oasis. Experimental validation

M. Kuntz and **M. Höpfner** — 97 Efficient line-by-line calculation of absorption coefficients

Note

H.M. Machali, A.R. Degheidy and **A. El-Depsy** — 115 Accurate analytical approximation to Milne's problem for a scattering and absorbing medium

NUMBER 2–6

SPECIAL ISSUE

LIGHT SCATTERING BY NONSPHERICAL PARTICLES '98

M.I. Mishchenko, L.D. Travis and **J.W. Hovenier** — 127 Preface

I.R. Ciric and **F.R. Cooray** — 131 Benchmark solutions for electromagnetic scattering by systems of randomly oriented spheroids

U. Comberg and **T. Wriedt** 149 Comparison of scattering calculations for aggregated particles based on different models

J. Ding and **L. Xu** 163 Convergence of the **T**-matrix approach for randomly oriented, nonabsorbing, nonspherical Chebyshev particles

A. Doicu, Yu.A. Eremin and **T. Wriedt** 175 Projection schemes in the null field method

H.A. Eide, J.J. Stamnes, K. Stamnes and **F.M. Schulz** 191 New method for computing expansion coefficients for spheroidal functions

V.G. Farafonov, V.B. Il'in and **T. Henning** 205 A new solution of the light scattering problem for axisymmetric particles

I. Gurwich, N. Shiloah and **M. Kleiman** 217 The recursive algorithm for electromagnetic scattering by tilted infinite circular multilayered cylinder

M.I. Mishchenko and **G. Videen** 231 Single-expansion EBCM computations for osculating spheres (*Brief communication*)

P.K. Petrov and **V.A. Babenko** 237 The variational boundary condition method for solving problems of light scattering by nonspherical particles

W. Qingan, C. Kang and **O.Y.Z. Xiang** 251 Discussion of key algorithms for computing scattering cross sections using the separation of variables method for spheroids

A. Quirantes 263 Light scattering properties of spheroidal coated particles in random orientation

A. Battaglia, K. Muinonen, T. Nousiainen and **J.I. Peltoniemi** 277 Light scattering by Gaussian particles: Rayleigh-ellipsoid approximation

D. Lacoste and **B.A. van Tiggelen** 305 Stokes parameters for light scattering from a Faraday-active sphere

V.A. Markel and **V.M. Shalaev** 321 Absorption of light by soot particles in micro-droplets of water

P.L. Marston 341 Catastrophe optics of spheroidal drops and generalized rainbows

N.V. Shepelevich, I.V. Prostakova and **V.N. Lopatin** 353 Extrema in the light-scattering indicatrix of a homogeneous spheroid

V. Berdnik and **V. Loiko** 369 Radiative transfer in a layer with oriented spheroidal particles

J.L. de la Peña, J.M. Saiz, P.J. Valle, F. González, F. Moreno and **G. Videen**	383	Enhanced backscatter from monodisperse contaminants on a substrate
A.A. Kokhanovsky and **A. Macke**	393	The dependence of the radiative characteristics of optically thick media on the shape of particles
M.I. Mishchenko, J.M. Dlugach, E.G. Yanovitskij and **N.T. Zakharova**	409	Bidirectional reflectance of flat, optically thick particulate layers: an efficient radiative transfer solution and applications to snow and soil surfaces
M.C. Pitter, K.I. Hopcraft, E. Jakeman and **J.G. Walker**	433	Structure of polarization fluctuations and their relation to particle shape
D.G. Stankevich, Yu.G. Shkuratov and **K. Muinonen**	445	Shadow-hiding effect in inhomogeneous layered particulate media
L.G. Astafieva and **V.A. Babenko**	459	Heating of a spheroidal particle by intense laser radiation
N.G. Khlebtsov, A.G. Melnikov, V.A. Bogatyrev and **A.I. Sirota**	469	Electrooptic effects in dilute suspensions of bacterial cells and fractal aggregates
J. Porstendorfer, K-J. Berg and **G. Berg**	479	Calculation of extinction and scattering spectra of large spheroidal gold particles embedded in a glass matrix
R.J. Bantges, J.E. Russell and **J.D. Haigh**	487	Cirrus cloud top-of-atmosphere radiance spectra in the thermal infrared
A.J. Baran and **S. Havemann**	499	Rapid computation of the optical properties of hexagonal columns using complex angular momentum theory
H. Chepfer, G. Brogniez, P. Goloub, F.M. Bréon and **P.H. Flamant**	521	Observations of horizontally oriented ice crystals in cirrus clouds with POLDER-1/ADEOS-1
H. Czekala, S. Havemann, K. Schmidt, T. Rother and **C. Simmer**	545	Comparison of microwave radiative transfer calculations obtained with three different approximations of hydrometeor shape
Q. Han, W.B. Rossow, J. Chou, K-S. Kuo and **R.M. Welch**	559	The effects of aspect ratio and surface roughness on satellite retrievals of ice-cloud properties
M.P. Ioannidou, D.I. Bakatsoula and **D.P. Chrissoulidis**	585	Scattering of radiowaves by melting ice particles: an eccentric spheres model
Y-Q. Jin, N-X. Zhang and **M. Chang**	599	The Mueller and coherency matrices solution for polarimetric scattering simulation of tree canopy in SAR imaging at C band

N.A. Krotkov, D.E. Flittner, A.J. Krueger, A. Kostinski, C. Riley, W. Rose and **O. Torres** 613 Effect of particle non-sphericity on satellite monitoring of drifting volcanic ash clouds

A.C. Levasseur-Regourd, M. Cabane and **V. Haudebourg** 631 Observational evidence for the scattering properties of interplanetary and cometary dust clouds: an update

T. Nousiainen and **K. Muinonen** 643 Light scattering by Gaussian, randomly oscillating raindrops

E.V. Petrova 667 Mars aerosol optical thickness retrieved from measurements of the polarization inversion angle and the shape of dust particles

F. Prodi, O. Sturniolo, A. Battaglia and **R. Medini** 677 Radar parameters simulation for populations of spherical and non-spherical hydrometeors: dependence on size distributions, shapes and composition

C.G. Schmitt and **W.P. Arnott** 701 Infrared emission (500–2000 cm^{-1}) of laboratory ice clouds

W. Sun and **Q. Fu** 727 Anomalous diffraction theory for arbitrarily oriented hexagonal crystals